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New records of sea anemones (Cnidaria, Anthozoa, Actiniaria) from El Salvador, Eastern Pacific

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Abstract. We report the first records of the sea anemones *Anthopleura mariscali*, *Anthopleura nigrescens,* and *Exaiptasia diaphana* in the Protected Natural Area of Los Cóbanos and Punta Amapala on the coast of El Salvador. Additionally, we extend the known range of distribution of *Telmatactis panamensis* to south-eastern El Salvador. Each of these species is briefly described, and images of live specimens are provided. The geographic distributions of previous records of sea anemones in El Salvador are discussed. An updated list of 11 species reported in the country is provided.

Key words. Actinioidea, Actiniidae, Metridioidea, Aiptasiidae, Andvakiidae, benthic intertidal fauna

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INTRODUCTION

The coast of El Salvador, located in the Central American Pacific, spans approximately 321 km (Segovia et al. 2017). Despite its relatively short length, the Salvadoran coast presents a variety of shallow-water environments, including broad sandy beaches, coastal lagoons, gulfs, peninsulas, cliffs, and rocky reefs (Segovia et al. 2017). These diverse habitats harbor hundreds of species of marine and coastal flora and fauna. Among the biodiversity found in these coastal environments, several groups of marine invertebrates, such as sponges, corals, mollusks, and echinoderms, stand out for their abundance and high diversity (Reyes-Bonilla and Barraza 2003; Barraza 2008, 2014; Segovia et al. 2017). However, limited or no information is available for other invertebrate groups.

Sea anemones (Cnidaria, Actiniaria) are among the groups of invertebrates that are frequently overlooked in local fauna inventories in various regions, probably due to a lack of local specialists or the difficulty they face in identifying the species with certainty. Perhaps, this oversight is because they lack a direct commercial interest, as is the case with most groups of marine invertebrates. However, sea anemones play an ecologically important role as valuable components of food chains, as well as in the life cycle of other animals with which they maintain close symbiotic relationships (Daly et al. 2008).

Eight species of sea anemones have been previously reported in El Salvador, both in taxonomic studies (Carlgren 1949; Torrey 1906; Daly 2004) and in general inventories of the local invertebrate fauna (Barraza 2008, 2014) (Table 1).

In the present study, we document the first records of the species *Anthopleura mariscali* Daly & Fautin, 2004, *Anthopleura nigrescens* (Verrill, 1928), and *Exaiptasia diaphana* (Rapp, 1829) in El Salvador. These records are based on the examination of specimens from the Natural Protected Area of Los Cóbanos in the north of the country, as well as from Punta Amapala in the south. Additionally, we expanded the known distribution range of the species *Telmatactis panamensis* (Verrill, 1869), which had previously been reported from Los Cóbanos and the Gulf of Fonseca. In this study, we document its occurrence at Punta Amapala, on the southeastern Salvadoran coast.

Each of these four species is briefly described, and images of live specimens for each species are provided. Furthermore, we discuss and update the taxonomic status of the previous records of sea anemones

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Table 1. List of previous and new records of sea anemone species from El Salvador. New records in bold.

	Species	Localities	Reference
1	*Anthopleura dowii* Verrill, 1869	Acajutla	Daly 2004
2	***Anthopleura mariscali* Daly & Fautin, 2004**	**Conchagua (Punta Amapala)**	**This study**
3	***Anthopleura nigrescens* (Verrill, 1928)**	**Acajutla (Los Cóbanos), Conchagua (Punta Amapala)**	**This study**
4	*Anthopleura xanthogrammica* (Brandt, 1835)	Acajutla	Torrey 1906
5	*Bunodosoma californicum* Carlgren, 1951	Acajutla	Daly 2004; Häussermann 2004
6	*Bunodosoma grande* (Verrill, 1869)	Acajutla	Barraza 2014
7	*Actinostella* sp.	La Libertad	Barraza 2014
8	*Phymactis papillosa* (Lesson, 1830)	San Salvador	Carlgren 1949
9	***Exaiptasia pallida* (Rapp, 1829)**	Acajutla (Los Cóbanos), Conchagua (Punta Amapala)	This study
10	***Telmatactis panamensis* (Verrill, 1869)**	Acajutla (Los Cóbanos), **Conchagua (Punta Amapala)**	Barraza 2014; **this study**
11	*Metridium farcimen* (Brandt, 1835)	East off Meanguera Island	Barraza 2008

from the coast of El Salvador. These new records increase the number of known sea anemones for El Salvador to 11 species. The primary goal of this study is to encourage biological and ecological research on sea anemones in the coastal environments of El Salvador.

METHODS

A total of 43 specimens belonging to four species were collected from intertidal rocky shores at various locations within the natural protected area of Los Cóbanos, municipality of Acajutla, department of Sonsonate, and from Punta Amapala, municipality of Conchagua, department of La Unión, in El Salvador (Figure 1). Collection was done by hand using a hammer and chisel, after which the specimens were transferred to the laboratory and kept in an aquarium for photographing their color while alive. To prepare the specimens for further examination, they were relaxed using 5% $MgCl_2$ seawater solution and then fixed in 5% formalin in seawater. Measurements of the pedal disc, column, oral disc, and tentacles were obtained from living and relaxed specimens. Fragments of 2–5 selected specimens each species were dehydrated and embedded in paraffin. Histological sections, 6–10 µm thick, were stained with hematoxylin-eosin (Estrada et al. 1982). The specimens were deposited in the Scientific Collection of Aquatic Invertebrates of the Instituto de Ciencias del Mar y Limnología (**ICMARES**). We followed the taxonomic classification of Rodríguez et al. (2014). The description of each species is based on examined specimens.

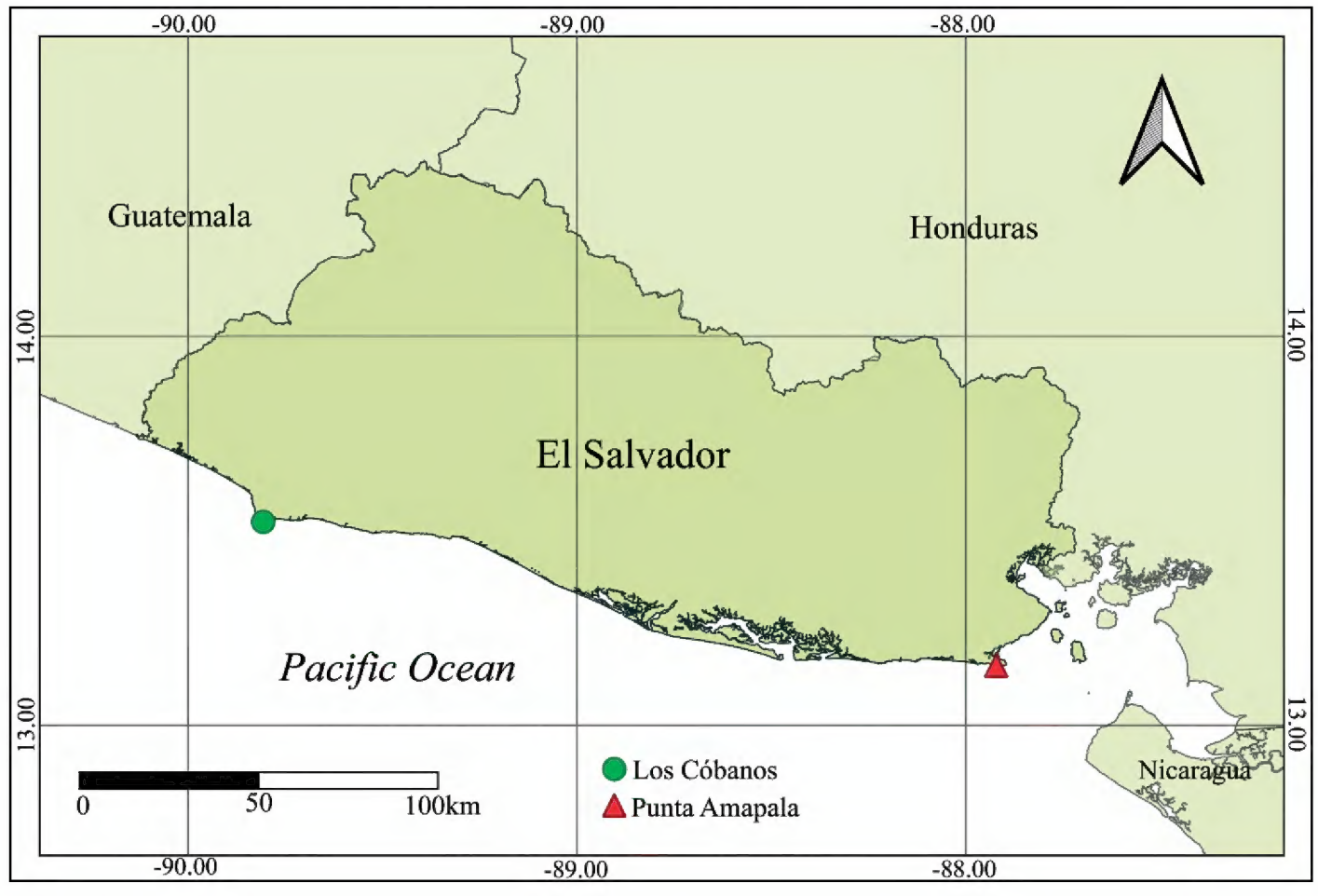

Figure 1. Map indicating the localities studied along the coast of El Salvador.

RESULTS

Order Actiniaria Hertwig, 1882
Suborder Enthemonae Rodríguez & Daly in Rodríguez et al., 2014
Superfamily Actinioidea Rafinesque, 1815
Family Actiniidae Rafinesque, 1815
Genus *Anthopleura* Duchassaing de Fombressin & Michelotti, 1860

Anthopleura mariscali Daly & Fautin, 2004

Figure 2A–F

New record. EL SALVADOR – Conchagua • Punta Amapala, Playa Maculís; 13°09′14.3″N, 087°55′20″W; 0.10 m depth; 15.VI.2015; A. Ramírez-Orellana leg.; 6 spec., ICMARES-UES-CI-23.

Description. Oral disc 5–6 mm in diameter, about the same diameter as column, translucent red-dish-brown with mesenterial insertions visible. Tentacles simple, smooth, short, conical, pointed tips, arranged in four cycles (40–48 in number in specimens examined), inner tentacles longer than outer ones, dark red with basal green flashes (Figure 2A, B). Column cylindrical, about 8–10 mm in height, 5–6 mm in width, covered from margin to just above limbus with simple, endocoelic, adhesive verrucae. Verrucae cup-shaped, arranged in regular longitudinal series, more prominent distally than proximally. Column pinkish red proximally, darker distally; verrucae same color as column. Margin denticulate, with large marginal projections, each projection bears three or more verrucae on its adoral surface, and a single acrorhagus (containing basitrichs and holotrichs) on its oral surface and settled in the fosse. Marginal projections frosted with white longitudinal stripes (Figure 2B). Pedal disc 6–7 mm in diameter, pinkish red. Mesen-teries arranged irregularly in three cycles: first two cycles perfect, third imperfect. Directive mesenteries absent (Figure 2C); three siphonoglyphs in the specimen examined attached to regular pairs of mesenter-ies. Gametogenic tissue (spermatic vesicles) observed in complete mesenteries; gonochoric. Retractor muscles well-developed, strong, restricted to circumscribed, reniform (Figure 2C); parietobasilar muscles well-developed with a short pennon. Basilar muscles well-developed (Figure 2D). Marginal sphincter muscle endodermal, circumscribed, palmate (Figure 2E). Longitudinal muscles of tentacles ectodermal (Figure 2F). Cnidom: basitrichs, holotrichs, microbasic *b*-mastigophores, microbasic *p*-mastigophores, and spirocysts. This species lacks zooxanthellae.

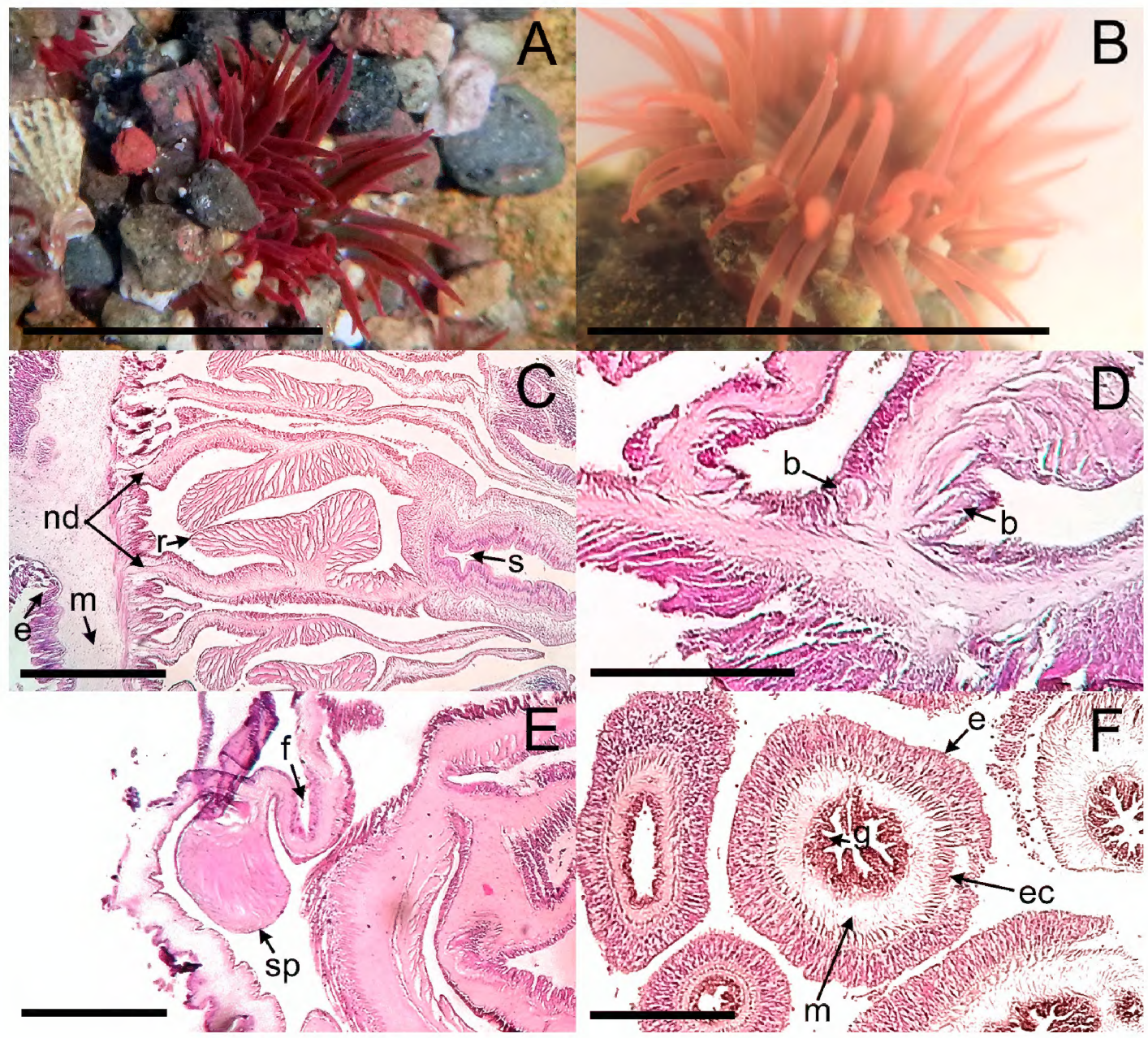

Figure 2. *Anthopleura mariscali*. **A.** Live specimen in natural habitat. **B.** Lateral view. **C.** Cross-section through upper column, detail of a siphonoglyph. **D.** Longitudinal section through pedal disc, detail of basilar muscles. **E.** Longitudinal section through column margin, detail of m arginal sphincter muscle. **F.** Cross-section through a tentacle, detail of ectodermal longitudinal muscles. Abbreviations: b = basilar muscles; e = epidermis; ec = ectodermal muscles; f = fosse; g = gastro-dermis; m = mesoglea; nd = non-directive mesenteries; r = retractor muscles; s = siphonoglyph; sp = sphincter muscle. Scale bars: A, B =10 mm; C, D = 200 µm.

Remarks. This species is mainly distinguished from other *Anthopleura* species distributed in the region by the typical frosted with white stripes on marginal projections (Daly and Fautin 2004). Quesada et al. (2017) reported two color variants in tentacles: one with only red tentacles, and another with gray tentacles in the two internal cycles, with external cycles having a pink hue. Daly and Fautin (2004) reported that this species can have 40–100 tentacles and mesenteries arranged in three or four cycles, depending on the size of the animal. Furthermore, Daly and Fautin (2004) documented the encounter of specimens with two siphonoglyphs attached to directive mesenteries, as well as specimens without directives and with more than two siphonoglyphs attached to regular pairs of mesenteries. In these cases, specimens exhibited regeneration scars, suggesting potential clonality.

Natural history. This species lives inside cracks and crevices, attached to rocks in the intertidal zone. It is likely capable of asexual reproduction (Daly and Fautin 2004; Fautin et al. 2007). In some places, *A. mariscali* is sympatric with *A. nigrescens* (Fautin et al. 2007; Quesada et al. 2017).

Distribution. Galapagos Archipelago (Daly and Fautin 2004), Pacific coast of Costa Rica (Quesada et al. 2017). This is the first record of *A. mariscali* in El Salvador.

***Anthopleura nigrescens* (Verrill, 1928)**
Figure 3A–F

New records. EL SALVADOR – Acajutla • Los Cóbanos, Playa El Faro; 13°31′25.9″N, 089°48′21.9″W; 1 m depth; 03.VII.2015; A. Ramírez-Orellana leg.; 2 spec., ICMARES-UES-CI-28; Los Cóbanos, Playa Veraneras; 13°31′37.51″N, 89°48′35.32″W; 1 m depth; 16.IV.1998; A. Ramírez-Orellana leg.; 1 spec., ICMARES-UES-CI-1 – Conchagua • Punta Amapala, Playa Maculís; 13°09′14.3″N, 087°55′20″W; 0.10 m depth; 15.VI.2015; A. Ramírez-Orellana leg.; 3 spec., ICMARES-UES-CI-25 • Punta Amapala, Playa La Pulgosa; 13°09′20.8″N, 087°54′47.5″W; 0.10 m depth; 06.VI.2015; A. Ramírez-Orellana leg.; 21 spec., ICMARES-UES-CI-7.

Description. Oral disc about 7–8 mm in diameter, dark-olive green with yellowish or whitish marks in the center. Tentacles simple, smooth, short, conical, pointed tips, irregularly arranged in five cycles (56–68 in number in the specimens examined), inner tentacles longer than outer ones, dark olive green with transversal marks and scattered white dots (Figure 3A). Fosse well marked. Column cylindrical, stout, about 13–15 mm in height, 7–8 mm in width, dark brown or black, covered from margin to just above limbus with simple, endocoelic, adhesive verrucae arranged in 42–48 longitudinal series (Figure 3B). Verrucae cup-shaped, same color as column in live specimens. Marginal projections with acrorhagi (containing basitrichs and holotrichs) attached to its oral face and settled in the fosse. Pedal disc well-developed, about 8-9 mm

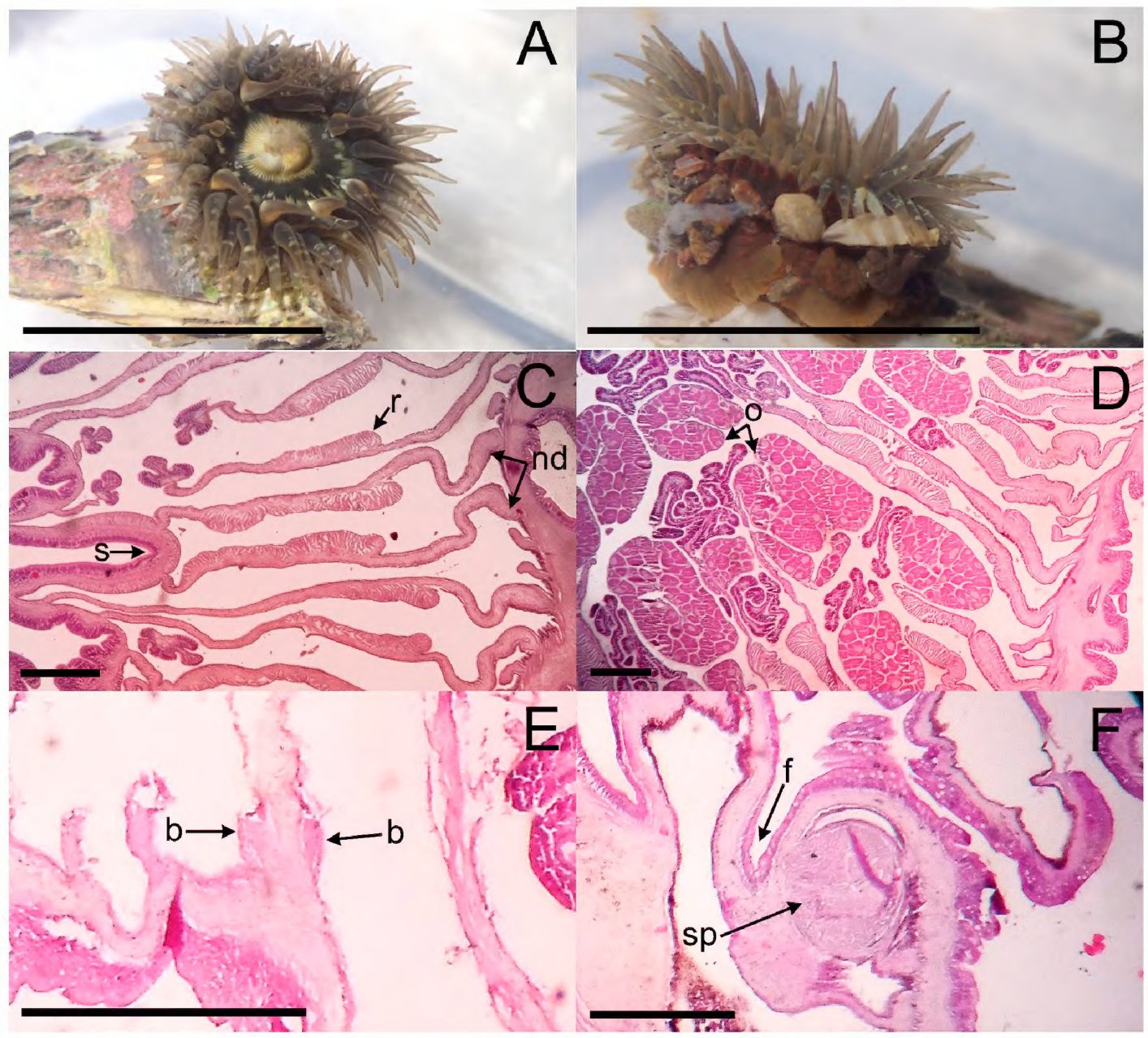

Figure 3. *Anthopleura nigrescens*. **A.** Oral view. **B.** Lateral view. **C.** Cross-section through upper column, detail of a siphonoglyph. **D.** Cross-section through mid-column, detail of gametogenic tissue. **E.** Longitudinal section through pedal disc, detail of basilar muscles. **F.** Longitudinal section through column margin, detail of marginal sphincter muscle. Abbreviations: b = basilar muscles, f = fosse, nd = non-directive mesenteries, o = oocysts, r = retractor muscles, s = siphonoglyph, sp = sphincter muscle. Scale bars: A, B =10 mm; C, D = 200 µm.

in diameter, pale pink. Mesenteries arranged irregularly in four cycles. Directive mesenteries absent (Figure 3C); up to six siphonoglyphs in specimens examined. Gametogenic tissue (oocysts) observed in strongest mesenteries of the first three cycles (Figure 3D). Retractor muscles well developed, strong, restricted (Figure 3C, D); parietobasilar muscles well developed, with a mesogleal pennon. Basilar muscles well developed (Figure 3E). Marginal sphincter muscle circumscribed, palmate (Figure 3F). Longitudinal muscles of tentacles ectodermal. Cnidom: basitrichs, holotrichs, microbasic *b*-mastigophores, microbasic *p*-mastigophores, and spirocysts. This species lacks zooxanthellae.

Remarks. This species is easily distinguished from other *Anthopleura* species by its dark color pattern on the oral disc and column (Dunn 1974; Fautin et al. 2007; Acuña et al. 2012). Additionally, it lacks directive mesenteries and typically possesses more than two siphonoglyphs due to asexual reproduction (Dunn 1974). Dunn (1974) reported the presence of between 36 and 80 tentacles in specimens from Hawaii.

Natural history. This species lives in the rocky intertidal zone under rocks (Acuña et al. 2022) and in shallow subtidal zones (Dunn 1974; Fautin et al. 2007; Acuña et al. 2012). It is gonochoric but is also capable of asexual reproduction by longitudinal fission (Dunn 1974; Fautin et al. 2007). It has been reported as an opportunistic polyphagous predator (Quesada et al. 2014) and lacks zooxanthellae (Dunn 1974).

Distribution. Costa Rica (Acuña et al. 2012), Galápagos Islands (Fautin et al. 2007), Hawaii (Dunn 1974), Hong Kong (England 1987, 1992), India (Parulekar 1968), Japan (Uchida 1938), Korea (Song and Lee 1998), Marshall Islands (Cutress and Arneson 1987), Panamá (Acuña et al. 2022). This is the first record of *A. nigrescens* in El Salvador.

Superfamily Metridioidea Carlgren, 1893
Family Aiptasiidae Carlgren, 1924
Genus *Exaiptasia* Grajales & Rodríguez, 2014

***Exaiptasia diaphana* (Rapp, 1829)**
Figure 4A–F

New records. EL SALVADOR – Acajutla • Los Cóbanos, Playa La Privada; 13°31′39.88″N, 089°48′43.01″W; 1 m depth; 09.VII.2015; A. Ramírez-Orellana leg.; 3 spec., ICMARES-UES-CI-68 – Conchagua • Punta Amapala, Playa Maculís; 13°09′14.3″N, 087°55′20″W; 0.1 m depth; 04.VIII.2015; A. Ramírez-Orellana leg.; 1 spec., ICMARES-UES-CI-59.

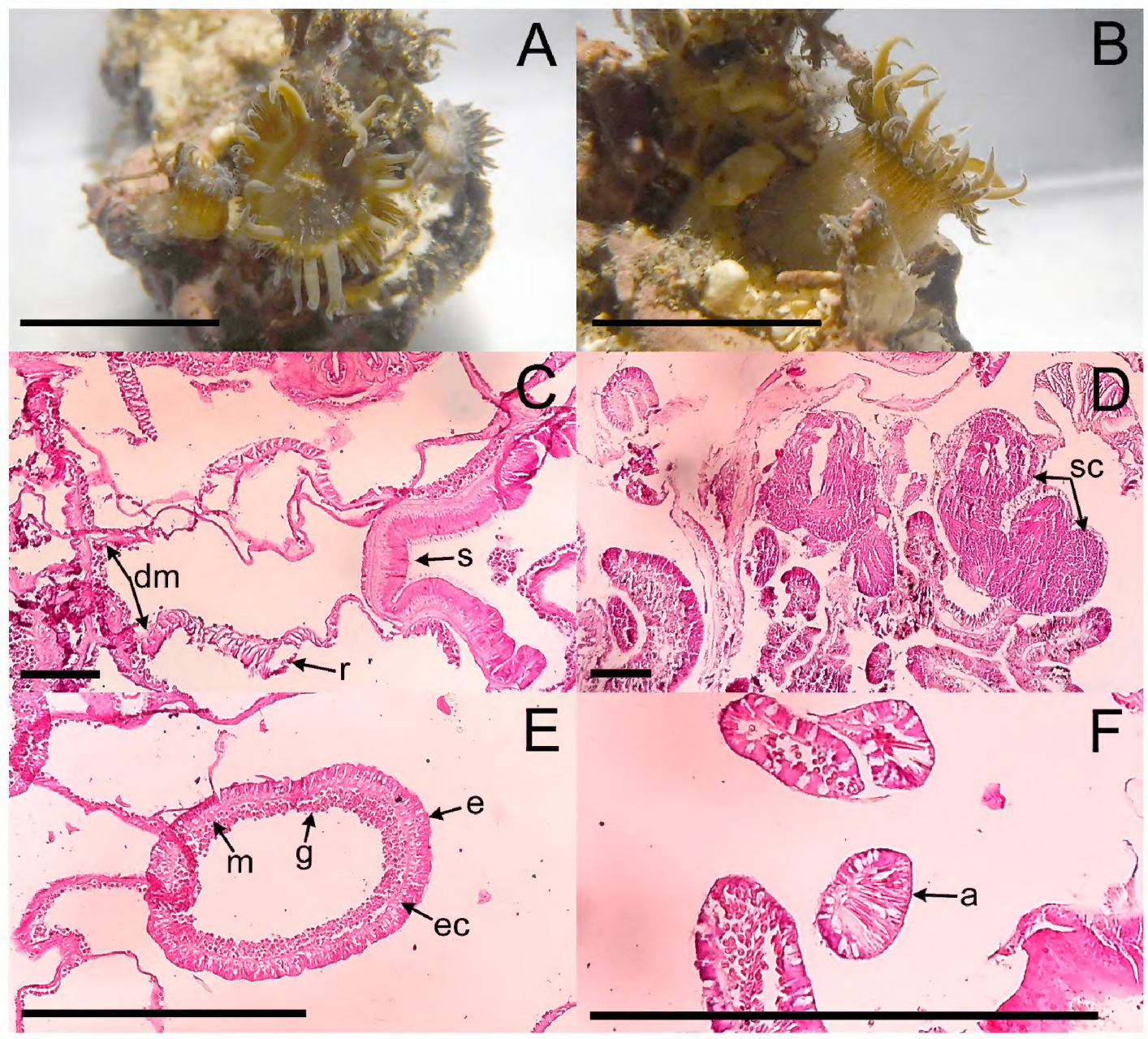

Figure 4. *Exaiptasia diaphana*. **A.** Oral view. **B.** Lateral view. **C.** Cross-section through upper column, detail of a siphonoglyph. **D.** Cross-section through mid-column, detail of gametogenic tissue. **E.** Cross-section through a tentacle, detail of ectodermal longitudinal muscles. **F.** Cross-section through the acontia. Abbreviations: a = acontia, dm = directive mesenteries, e = epidermis, ec = ectodermal muscles, g = gastrodermis, m = mesoglea, r = retractor muscles, s = siphonoglyph, sc = spermatic-cysts. Scale bars: A, B =10 mm; C, D = 200 µm.

Description. Oral disc 6–7 mm in diameter, brownish-green, translucent, mesenterial insertions visible; mouth whitish (Figure 4A). Tentacles simple, smooth, relatively long, pointed tips, brownish green with transversal white marks, arranged irregularly in five cycles, about 70–90 in number in specimens examined. Margin devoid of protuberances. Column smooth, brownish- or grayish-green, translucent, with two or three cycles of cinclides around mid-column (Figure 4B). Pedal disc 5–6 mm in diameter, wider than column, grayish green. Mesenteries arranged irregularly in four cycles, first cycle perfect, the rest imperfect. Two pairs of directive mesenteries each attached to a well-developed siphonoglyph (Figure 4C). Gonochoric; gametogenic tissue (spermatic cysts) observed in mesenteries of the first and second cycles (Figure 4D), other sterile. Retractor muscles strong and diffuse (Figure 4C); parietobasilar muscles weak. Basilar muscles well developed. Longitudinal muscles of tentacles ectodermal (Figure 4E). Marginal sphincter muscle mesogleal, diffuse, poorly developed. Acontia present (Figure 4F). Cnidom: basitrichs, microbasic *b*-mastigophores, microbasic *p*-mastigophores, microbasic *p*-amastigophores, and spirocysts. This species has zooxanthellae.

Remarks. According to Grajales and Rodríguez (2016), the genus *Exaiptasia* includes two cryptic species, *E. diaphana* (= *E. pallida*) and *Exaiptasia brasiliensis* Grajales & Rodríguez, 2016. This species cannot be distinguished morphologically but differ genetically, as well as in the species of endosymbionts with which they associate. However, *E. brasiliensis* is restricted to the southwestern Caribbean and southwestern Atlantic Ocean, where it lives in sympatry with *E. diaphana* (Grajales and Rodríguez 2016).

Natural history. This species lives in shallow waters attached to small rocks or coral rubble, submerged lumber, mangrove roots, pilings, and floats, often found at depths ranging from 0.5 to 20 m (González-Muñoz et al. 2016; Glon et al. 2020).

Distribution. Although the origin of *E. diaphana* is uncertain, it has been suggested that this species is native to the western Atlantic (Glon et al. 2020). However, its presence has been recorded in various regions worldwide, including the northern and southern Atlantic oceans, the eastern, central, and western Pacific oceans, as well as the Indian Ocean (Grajales and Rodríguez 2014; Glon et al. 2020). This wide distribution is attributed to the fact that *E. diaphana* is one of the sea anemone species considered invasive, successfully colonizing new regions (Grajales and Rodríguez et al. 2016; Glon et al. 2020).

Family Andvakiidae Danielssen, 1890
Genus *Telmatactis* Gravier, 1916

***Telmatactis panamensis* (Verrill, 1869)**
Figure 5A–F

New records. EL SALVADOR – Acajutla • Los Cóbanos, Playa El Faro; 13°31′25.9″N, 089°48′21.9″W; 1 m depth; 03.VII.2015; A. Ramírez-Orellana leg.; 2 spec., ICMARES-UES-CI-31 – Los Cóbanos • Playa Las Veraneras; 13°31′37.51″N, 089°48′35.32″W; 1m depth; 06.VII.2015; A. Ramírez-Orellana leg.; 3 spec., ICMARES-UES-CI-34 – Conchagua • Punta Amapala, Playa La Construcción; 13°09′21.6″N, 087°54′9.2″W; 0.1 m depth; 14.VI.2015]; A. Ramírez-Orellana leg.; 1 spec., ICMARES-UES-CI-2.

Description. Oral disc 9–11 mm in diameter, wider than column, purple red or brown with concentric circles marks around mouth (Figure 5A). Tentacles simple, smooth, short, conical but slightly widened at the tips, 4–5 mm in diameter, inner longer than outer ones, about 50–56 in number in specimens examined, purple red to greenish in color with transversal band-like oral marks from base to tips, and white scattered spots (Figure 5A, B). Column 10–12 mm in height, 6–8 mm in diameter, divided in scapulus and scapus. Scapulus short, purple; scapus wrinkled, covered with a thin cuticula, light brown; margin devoid protuberances. Pedal disc 8–10 mm in diameter, same color as scapus. Mesenteries irregularly arranged in three cycles, only the first cycle perfect, rest imperfect; mesenteries divided in macro- and microcnemes (Figure 5C). Two pairs of directive mesenteries, each attached to a well-developed siphonoglyph (Figure 5C). Gametogenic tissue not observed in specimens examined. Retractor muscles well-developed, strong, restricted to circumscribed (Figure 5C); parietobasilar muscles poorly developed. Basilar muscles poorly developed. Marginal sphincter mesogleal, very long, strong, and wide at the upper part, and thin towards mid-scapus (Figure 5D). Longitudinal muscles of tentacles and oral disc ectodermal (Figure 5E). Acontia present (Figure 5F). Cnidom: basitrichs, microbasic *p*-mastigophores, microbasic *p*-amastigophores, and spirocysts. This species lacks zooxanthellae.

Remarks. This is the only species of the genus *Telmatactis* currently known from the Eastern Pacific coast. However, it is possible that the variability in its coloration and other characteristics may be concealing the presence of some cryptic species (Fautin et al. 2007).

Natural history. This species lives under rocks, ranging from the low intertidal zone to a depth of 35 m (Fautin et al. 2007).

Distribution. Chile (Easter Island, Carlgren 1922), Costa Rica (Cocos Island, Acuña et al. 2012), Ecuador (Galapagos Islands, Fautin et al. 2007), México (Carlgren 1951), Panamá (Acuña et al. 2022).

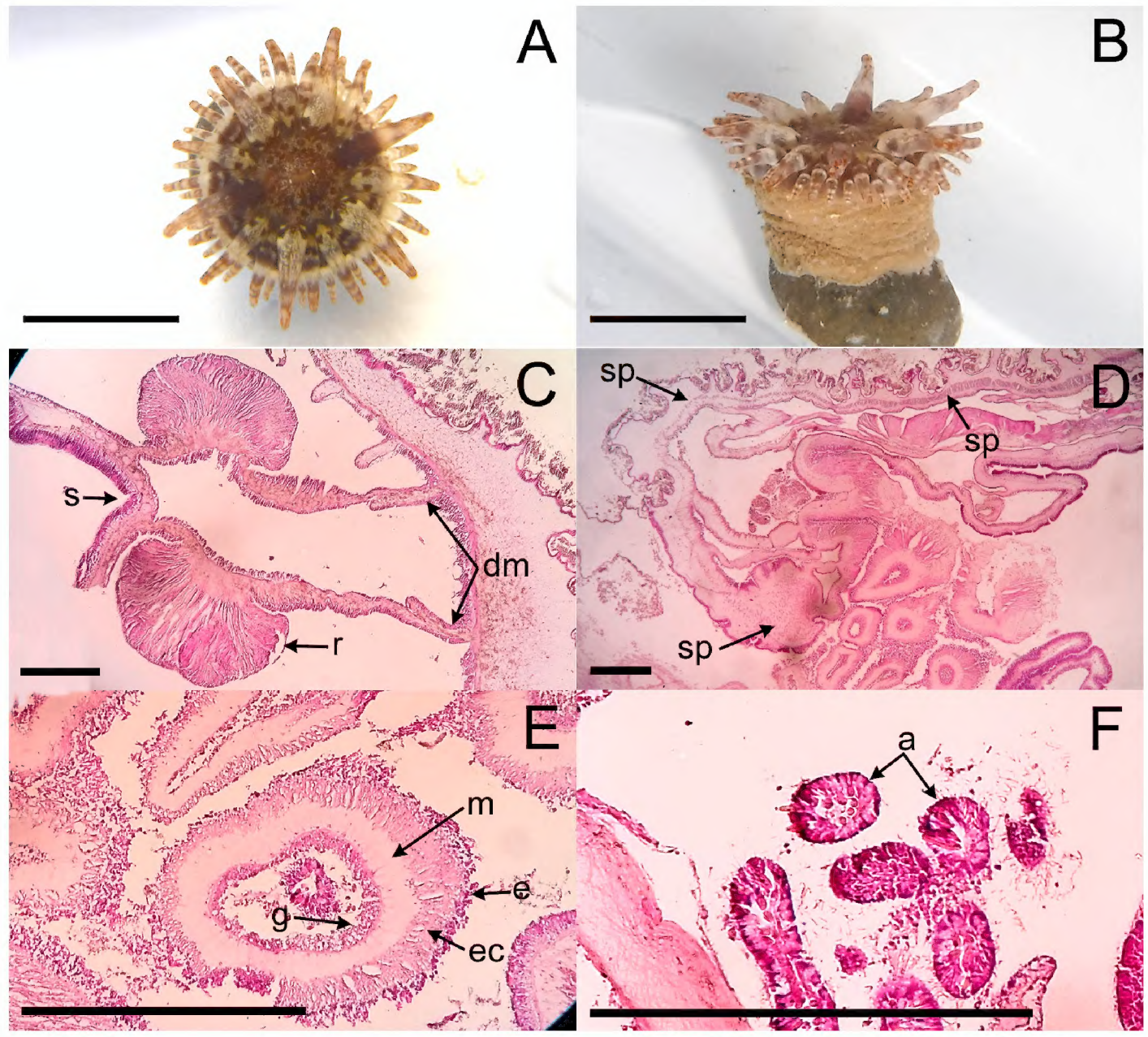

Figure 5. *Telmatactis panamensis*. **A.** Oral view. **B.** Lateral view. **C.** Cross-section through upper column, detail of a siphonoglyph. **D.** Longitudinal section through upper column, detail of marginal sphincter muscle. **E.** Cross-section through a tentacle, detail of ectodermal longitudinal muscles. **F.** Cross-section through the acontia. Abbreviations: a = acontia, dm = directive mesenteries, e = epidermis, ec = ectodermal muscles, g = gastrodermis, m = mesoglea, r = retractor muscles, s = siphonoglyph, sp = sphincter muscle. Scale bars: A, B = 10 mm; C, D = 200 µm.

DISCUSSION

The nearest previous records of *Anthopleura nigrescens* and *A. mariscali* are in Costa Rica, in the localities of Mata Limón and Puntarenas, respectively, located about 500 km to the south of our records (Acuña et al. 2012; Quesada et al. 2017). The nearest record of *Exaiptasia diaphana* is also in Costa Rica, specifically in Isla del Coco, about 860 km to the south (Acuña et al. 2020). With these three new records, the number of species reported for El Salvador has increased to 11. Although these are not all the species observed in El Salvador, they are the ones that have been identified at a specific level, except for *Actinostella* sp. (= *Phyllactis* sp.) reported by Barraza (2014).

In fact, we have also observed specimens of the genus *Actinostella* in several locations in Los Cóbanos and Punta Amapala, but their taxonomic identification is still uncertain, and they probably belong to an undescribed species. Additionally, we have observed about a dozen differently colored morphotypes of the genus *Anthopleura*, which remain unidentified at the species level and may represent potentially undescribed species. Furthermore, one of us (J.S.) has observed specimens of the genus *Nemanthus* on black corals of the species *Myriopathes panamensis*, at a depth of 30–40 m, which are currently in the process of being identified.

Previous records of sea anemones in El Salvador:

- *Anthopleura xanthogrammica* was reported by Torrey (1906) in Acajutla, San Salvador. Although this species is primarily distributed in the northeastern Pacific, from the west coast of Canada to the southwestern coast of the United States, there are also a few records on the Pacific coast of Panama, and in Japan (Hand 1955; Rodríguez et al. 2023a). It is worth noting that Torrey's (1906) brief description of *A. xanthogrammica* apparently relies on specimens from San Diego, California, and the locality of Acajutla is only mentioned in the distribution section of his report, without reference material or additional information. Since the presence of *A. xanthogrammica* has not been reported again in El Salvador, Torrey's (1906) record may be due to misidentification.
- *Anthopleura dowii* and *Bunodosoma californicum* were documented by Daly (2004) in Acajutla, based on the examination of specimens deposited in the collections of the Yale University Peabody Museum and the California Academy of Sciences, respectively. In addition to the records of these species in El Salvador, the known distribution of *A. dowii* extends from both sides of the Baja California Peninsula, Mexico, to Panama (Barragán et al. 2019; Vassallo-Ávalos et al. 2022), while that of *B. californicum* ranges from the Baja California Peninsula to the coast of Costa Rica (Quesada et al. 2015; Barragán et al. 2019; Vassallo-Ávalos et al. 2022).

- *Bunodosoma grande* was recently reported in Acajutla (Barraza 2014), but its currently known distribution extends from the Baja California Peninsula, Mexico, to Peru (Barragán et al. 2019; Vassallo-Ávalos et al. 2022). There is no known reference material that can help confirm the presence of this species in El Salvador.
- *Phymactis papillosa* was mentioned as present in San Salvador by Carlgren (1949), in addition to its presence in Baja California Mexico, Nicaragua, Panama, and Isla de las Perlas. Its currently known distribution extends from both sides of the Baja California Peninsula to Chile (Häussermann 2004; Barragán et al. 2019; Vassallo-Ávalos et al. 2022). Despite Carlgren's mention (1949), there are no known reference specimens that can help confirm the presence of this species in El Salvador.
- *Actinostella* sp. was recently reported in the municipality of La Libertad (Barraza 2014). Although we have observed specimens of the genus *Actinostella* in other locations in El Salvador, its taxonomic identification remains incomplete, necessitating more detailed studies to determine the species.
- *Metridium farcimen* was documented by Barraza (2008) in El Salvador, specifically on Meanguera Island. This species is distributed in the North Pacific, encompassing Japan, the Pacific coast of Russia, the Aleutian Islands, Alaska (USA), and the Pacific coast of Canada and the USA, with the southernmost record in the Gulf of California (Rodríguez et al. 2023b). Although Barraza (2008) includes a photograph of the purported specimen of *M. farcimen*, a taxonomic examination of the reported specimens would be desirable to confirm the identification of the species.
- *Telmatactis panamensis* was reported in Los Cóbanos and the Gulf of Fonseca (Barraza 2014), and its current known distribution range extends from Baja California, Mexico, to Chile (Acuña et al. 2022).

Due to several previous records of anemones lacking reference specimens or other data that could help confirm the presence of species in El Salvador, additional studies are needed. These studies should include obtaining new collected specimens to confirm their occurrences in the country. Furthermore, it would be desirable to explore deeper environments beyond coastal areas, undoubtedly leading to the discovery of more records and potentially undescribed species of sea anemones inhabiting the region.

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ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

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Author contributions

Conceptualization: ARO, JS, FHA. Data curation: ARO, JS, RGM. Formal analysis: ARO, JS. Funding acquisition: JS. Investigation: ARO, JS, FHA, AG, RGM. Methodology: ARO, JS, FHA, AG, RGM. Resources: JS. Visualization: ARO, JS, FHA, AG, RGM. Writing – original draft: ARO, JS, FHA, AG, RGM. Writing – review and editing: RGM.

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Data availability
All data that support the findings of this study are available in the main text.

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